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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,572	11/13/2003	Zachary Steven Smith	200208523-1	8800

22879 7590 09/28/2006

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EXAMINER

LE, MIRANDA

ART UNIT PAPER NUMBER

2167

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/712,572

Applicant(s)

SMITH ET AL.

Examiner

Miranda Le

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract, line 1, "Disclosed are systems and methods" should be avoided.
Appropriate correction is required.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. § 101 reads as follows:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title".

3. Claims 1-27 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

(a) Claims 1-14 fail to provide a practical application that produces a tangible result, since merely “determining an overall probability of ownership of the bug in question for potential owners in the database” does not able the usefulness to be realized. It is not until the determining (which takes place as a thought or a computation within a processor) is brought out of the mind or processor that it becomes more than an abstraction, instead being real-world and enabling the functionality to be realized. The claims fail to recite tangible results, as the determining step is not tangible.

(b) Claims 15-21 have the same type of issues as (a), therefore, is rejected under similar rationale. In addition, each of the means is reasonably interpreted in view of the specification as just software; the claimed system is not limited to embodiments, which include the hardware necessary to enable any underlying functionality to be realized, instead being software per se.

(c) Claims 22-27 have the same issues as (a) therefore, is rejected under similar rationale. Plus, the claims fail to fall within a category of patentable subject matter set forth in 35 U.S.C. 101. Merely claiming nonfunctional descriptive material, i.e. abstract ideas, store in a computer-readable medium does not make it statutory.

(d) Claims 28-30 fail to provide a practical application that produces a tangible result. The claimed process manipulates abstract ideas to result in an abstract construct (no tangible result). Further, merely claiming nonfunctional descriptive material, i.e. abstract ideas, store in a computer-readable medium does not make it statutory.

(e) Claim 31 has the same type of issues as (d), therefore, is rejected under similar rationale.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless:

(e) the invention was described in

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-9, 15-19, 21-26, 28, 29, 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Glerum et al. (US Patent No. 6,944,849).

Glerum anticipated independent claims 1, 15, 22, 28, 31 by the following:

As per claim 1, Glerum teaches a method for determining bug ownership comprising:

generating a database (*i.e. tables in Figs. 6A, 6B*) that contains database tokens that relate to identified bugs and that are associated with potential owners (*i.e. software developers, col. 7, lines 36-44*) (*Figs. 6A, 6B; col. 9, lines 20-26*);

generation input tokens (*i.e. retrieve assert and bug information, col. 7, line 61-63*) associated with a bug in question (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*);

scanning the database for occurrences (*i.e. HitsReleased, HitsUnreleased, Fig. 6A*) of the input tokens (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*); and

determining an overall probability (*i.e. the number of times the assert has been hit in Released version of the application, col. 8, lines 48-52*) of ownership of the bug in question for potential owners in the database (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 15, Glerum teaches a system for determining bug ownership, comprising:

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means for generating input tokens (*i.e. retrieve assert and bug information, col. 7, line 61-63*) associated with a bug in question (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*);

means for scanning a database that associates potential owners (*i.e. software developers, col. 7, lines 36-64*) with database tokens pertaining to bugs that the owners may own for occurrences (*i.e. HitsReleased, HitsUnreleased, Fig. 6A*) of the input tokens (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*); and

means for determining an overall probability of ownership of the bug in question for potential owners of the database (*i.e. the number of times the assert has been hit in Released version of the application, col. 8, lines 48-52*) (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 22, Glerum teaches a system stored on a computer-readable medium, the system comprising:

logic configured to generate a database (*i.e. tables in Figs. 6A, 6B*) that associates potential owners with database tokens that pertain to bug records (*i.e. software developers, col. 7, lines 36-64*) (*Figs. 6A, 6B; col. 9, lines 20-26*);

logic configured to generate input tokens from an input that describes a bug in question (*i.e. retrieve assert and bug information, col. 7, line 61-63*);

logic configured to identify the number of occurrences (*i.e. HitsReleased, HitsUnreleased, Fig. 6A*) of each of the input tokens (*Figs. 6A, 6B*) in the database as per each potential owner (*col. 8, line 41 to col. 9, line 44*); and

logic configured to determine an overall probability of ownership of the bug in question for the potential owners relative to the number of occurrences (*i.e. the number of times the assert has been hit in Released version of the application, col. 8, lines 48-52*) (*Figs. 6A, 6B, col. 8, line*

41 to col. 9, line 44).

As per claim 28, Glerum teaches a bug ownership system stored on a computer-readable medium, the system comprising:

a derivative database generator (*i.e. tables in Figs. 6A, 6B*) that is configured to generate a derivative database that contains a plurality of database tokens that are associated with potential owners (*i.e. software developers, col. 7, lines 36-64 (Figs. 6A, 6B; col. 9, lines 20-26); and*

an ownership calculator that is configured to:

generate input tokens from an input that describes a bug in question (*i.e. retrieve assert and bug information, col. 7, line 61-63*), determine the number of occurrences (*i.e. HitsReleased, HitsUnreleased, Fig. 6A*) of the input tokens in the derivative database relative to each potential owner, determine the probability of ownership of the bug in question for each potential owner relative to each input token, and calculate an overall probability of ownership of the bug in question for each potential owner using the determined probabilities (*i.e. the number of times the assert has been hit in Released version of the application, col. 8, lines 48-52*) (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 31, Glerum teaches a computer system, comprising:

a processing device (*Figs. 1, 2*); and

a memory that comprises a bug ownership system (*i.e. tables in Figs. 6A, 6B*), the bug ownership system being configured to generate a first set of tokens for each of several potential owners (*i.e. software developers, col. 7, lines 36-64*), generate input tokens from an input that describes a bug in question (*i.e. retrieve assert and bug information, col. 7, line 61-63*),

determine the number of occurrences (*i.e. HitsReleased, HitsUnreleased, Fig. 6A*) of the input tokens in the first sets of tokens, determine the probability of ownership of the bug in question for each potential owner relative to each input token, and calculate an overall probability of ownership of the bug in question for each potential owner using the determined probabilities (*i.e. the number of times the assert has been hit in Released version of the application, col. 8, lines 48-52*) (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

It should be noted that each assert tag of Glerum includes a name of a software application being test (col. 6, lines 47-63, Fig. 3), Fig. 6A discloses a plurality of assert tags, each assert tag corresponds to "software developers" (col. 7, lines 36-64), therefore, the "each potential owner" is interpreted as a group of software developers.

As per claim 2, Glerum teaches generating a database comprises generating a derivative database from a bug database that contains bug records with which potential owners are associated (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 3, Glerum teaches generating a derivative database comprises generating database tokens from character strings of the bug records (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 4, Glerum teaches generating database tokens comprises generating tokens for character strings that comprises at least one of letters, numbers, and underscores (*Figs. 6A, 6B, col. 8, lines 41-47*).

As per claim 5, Glerum teaches generating database tokens further comprises noting the number of times each input token occurs relative to each potential owner of the bug in question (*Figs. 6A, 6B, col. 8, lines 41-67*).

As per claim 6, Glerum teaches generating input tokens comprises generating tokens from character strings of a bug input (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 7, Glerum teaches generating input tokens comprises generating tokens for character strings that comprises at least one of letters, numbers, and underscores (*Figs. 6A, 6B, col. 8, lines 41-47*).

As per claim 8, Glerum teaches scanning the database comprises scanning the database tokens to identify matches for the input tokens (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 9, Glerum teaches scanning the database further comprises identifying the number of occurrences of each input token in the database relative to each potential owner of the bug in question (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 16, Glerum teaches the means for generating input tokens comprise means for generating tokens from character strings of an input entered by a user (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 17, Glerum teaches the means for scanning a database comprise means for scanning the database tokens to identify matches for the input tokens and means for identifying the number of occurrences of the input tokens in the database relative to each potential owner (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 18, Glerum teaches the means for determining the overall probability of ownership comprise means for determining a probability of ownership as to each potential owner relative to each database token associated with those owners (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 19, Glerum teaches the means for determining the overall probability of

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ownership further comprise means for determining the overall probability of ownership as to the potential owners using the determined probabilities as to each input token (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 21, Glerum teaches means for generating the database from bug records contained in a bug database (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 23, Glerum teaches the logic configured to generate a database is configured to generate database tokens from character strings of bug records of a bug database and note the number of occurrences of each database token relative to each potential owner (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 24, Glerum teaches the logic configured to generate input tokens is configured to generate tokens from character strings of an input file (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 25, Glerum teaches the logic configured to determine the overall probability of ownership is configured to determine probabilities of ownership as to each potential owner relative to database tokens associated with those owners (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 26, Glerum teaches the logic configured to determine the overall probability of ownership is further configured to determine the overall probability of ownership as to the potential owners using the determined probabilities (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

As per claim 29, Glerum teaches the derivative database generator is configured to

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generate database tokens from character strings contained in bug records of a bug database (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glerum et al. (US Patent No. 6,944,849), in view of Bates et al. (US Patent No. 7,096,458).

As per claim 10, Glerum teaches determining the overall probability of ownership comprises summing the total of occurrences of each input token in the database (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

Glerum does not explicitly teach normalizing the total number of occurrences of each input token as to each potential owner of the bug in question.

However, Bates teaches normalizing the total number of occurrences of each input token as to each potential owner of the bug in question (*i.e. assigns an individual weight to each of the restorable debug entities, col. 3, lines 10-34*).

It would have been obvious to one of ordinary skill of the art having the teaching of Glerum and Bates at the time the invention was made to modify the system of Glerum to include normalizing the total number of occurrences of each input token as to each potential owner of the bug in question as taught by Bates. One of ordinary skill in the art would be motivated to make this combination in order to compare the restorable debug entities of each scenario to determine the extent of similarity between the scenarios in view of Bates, as doing so would give the added benefit of helping programmers establish important breakpoint and monitor scenarios and to be able to recall these scenarios across different programs that are debugged as taught by Bates (*i.e. col. 3, lines 5-8*).

As per claim 11, Bates teaches determining the overall probability of ownership further comprises scaling normalized valued that result from the normalizing to obtain scaled probabilities as to each input token relative to each potential owner in the database (*col. 3, lines 10-34*).

8. Claims 20, 27, 30, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glerum et al. (US Patent No. 6,944,849), in view of Booth et al. (US Patent No. 5,922,079).

As to claims 20, 27, 30, 32, Glerum does not specifically teach the means for determining the overall probability of ownership as to the potential owners using the determined probabilities comprise means for applying Bayes' Theorem to those probabilities to calculate the overall probability for each potential owner of owning the bug in question.

However, Booth teaches determining the overall probability of ownership as to the potential owners using the determined probabilities comprise means for applying Bayes'

Theorem to those probabilities to calculate the overall probability for each potential owner of owning the bug in question (*col. 4, lines 28-42*).

It would have been obvious to one of ordinary skill of the art having the teaching of Glerum and Booth at the time the invention was made to modify the system of Glerum to include determining the overall probability of ownership as to the potential owners using the determined probabilities comprise means for applying Bayes' Theorem to those probabilities to calculate the overall probability for each potential owner of owning the bug in question as taught by Booth. One of ordinary skill in the art would be motivated to make this combination in order to independently assign weights to the component failures in view of Booth, as doing so would give the added benefit of automatically analyzing and troubleshooting for identifying potential problems with the test suit and modeling errors based on incorrect diagnoses as taught by Booth (*col. 5, lines 34-59*).

9. Claims 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glerum et al. (US Patent No. 6,944,849), in view of Bates et al. (US Patent No. 7,096,458), and further in view of Walter et al. (US Patent No. 4,980,857).

As per claim 12, Glerum and Bates do not expressly teach determining the overall probability of ownership further comprises determining the standard deviance for each scaled probability and removing owner tokens from consideration that are associated with an input token having a deviance below a predetermined minimum deviance.

However, Walter teaches determining the overall probability of ownership further comprises determining the standard deviance for each scaled probability and removing owner

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tokens from consideration that are associated with an input token having a deviance below a predetermined minimum deviance (*i.e. a deviance check between the voted data value and each copy of the received data value, and will generate an error vector to the Fault Tolerator identifying each Node which generated a data value which differed from the voted data value by more than a predetermined amount, col. 9, lines 29-49; col. 47, lines 13-31*).

It would have been obvious to one of ordinary skill of the art having the teaching of Glerum, Bates and Walter at the time the invention was made to modify the system of Glerum and Bates to include determining the overall probability of ownership further comprises determining the standard deviance for each scaled probability and removing owner tokens from consideration that are associated with an input token having a deviance below a predetermined minimum deviance as taught by Walter. One of ordinary skill in the art would be motivated to make this combination in order to generate an error vector to the Fault Tolerator in view of Walter, as doing so would give the added benefit of identifying each Node which generated a data value which differed from the voted data value by more than a predetermined amount as taught by Walter (*col. 9, lines 29-49*).

As per claim 13, Glerum teaches determining the overall probability of ownership further comprises determining the overall probability of ownership as to a potential owners using the scaled probabilities associated with those owners (*Figs. 6A, 6B, col. 8, line 41 to col. 9, line 44*).

10. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glerum et al. (US Patent No. 6,944,849), in view of Bates et al. (US Patent No. 7,096,458), Walter et al. (US Patent No. 4,980,857), and further in view of Booth et al. (US Patent No. 5,922,079).

As per claim 14, Glerum, Bates and Walter do not expressly teach determining the overall probability of ownership as to potential owners comprises applying Bayes Theorem to the scaled probabilities of the potential owners to calculate probability for each potential owner of owning the bug in question.

However, Booth teaches determining the overall probability of ownership as to potential owners comprises applying Bayes Theorem to the scaled probabilities of the potential owners to calculate probability for each potential owner of owning the bug in question (*col. 4, lines 28-42*).

It would have been obvious to one of ordinary skill of the art having the teaching of Glerum, Bates, Walter and Booth at the time the invention was made to modify the system of Glerum, Bates and Walter to include determining the overall probability of ownership as to a potential owners comprises applying Bayes Theorem to the scaled probabilities of the potential owners to calculate probability for each potential owner of owning the bug in question as taught by Booth. One of ordinary skill in the art would be motivated to make this combination in order to independently assign weights to the component failures in view of Booth, as doing so would give the added benefit of automatically analyzing and troubleshooting for identifying potential problems with the test suit and modeling errors based on incorrect diagnoses as taught by Booth (*col. 5, lines 34-59*).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miranda Le whose telephone number is (571) 272-4112. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham, can be reached on (571) 272-7079. The fax number to this Art Unit is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Miranda Le
August 31, 2006



JOHN R. COTTINGHAM
SENIOR PATENT EXAMINER
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